



```
mouse_Mgat1      MLKKQTAGLVLWGAIIFVGVNALLLLFFWTRPpapgrlpsdsalgdgdpASL
rat_Mgat1        MLKKQSAGLVLWGAIIFVGVNALLLLFFWTRPAPGRLPSSDALGDDPASL
human_MGAT1      MLKKQSAGLVLWGAILFVAWNALLLLFFWTRPAPGRPPSVSALDGDGPASL
rabbit_MGAT1     MLKKQSAGLVLWGAILFVAWNALLLLFFWTRPVPSRLPSDNALDDDPASL
Xenopus_gntI    MPRK--VSVAWGAALFISWNAILLLYLMRSR-----SRGTDHSDIL
fly_Mgat1       MRTRKVLLVIGFLVTWTYATLYTYLLLRQGTGIHSTRHQSLQAYKLNSQARD
Caenorhabditis_gly-13 --MHZATTFIIIFIVFLWTLTYVENDTINRTRNTDN-----IDDL
Caenorhabditis_gly-14 --MHTSSKITFIIPVLIYFSWNFYIQNGFTNKALVKERL-----RLLKEM
Arabidopsis_CGL1 -MARISCDFRFLLIIPAAMFMTYIQMRLPQTQSQYADRLS--SAIESENHC
                :           :
mouse_Mgat1      TREVIHLAEDAEAELEORGLLQQIKEHYALWRQRW-----R
rat_Mgat1        TREVIHLAEDAEAELEORGLLQQIKEHYSLWRQRW-----R
human_MGAT1      TREVIRLAQDAEVELEORGLLQQIGD--ALSSRG
rabbit_MGAT1     TREVIRLAQDAEVELEORGLLQQIREHALWSQRW-----K
Xenopus_gntI    TAHVQLAEAAEAELKQKGLLQQIHHSGLLNQQQPSSHVR LAPMPKI
fly_Mgat1       NMQSHHLAKN-VFEFVLKLYLEKQPSPSVASTPQISIITAAETIAELPEQH
Caenorhabditis_gly-13 LESANRLERLLKFPAKKAIALAEDVHKIKRANKGKH-----
Caenorhabditis_gly-14 DEAGSRLEKLLKVEKEHMERLSETMN--RATR-----
Arabidopsis_CGL1 TSQMRLIDEVSIKQSRIVALDEDMKNRRNDIEVLQK-----DL
                *           :           *
mouse_Mgat1      VptvappawprvpvtppspvqpiLVLIACDRS-TVRRCLDKLLHYR-PSAE
rat_Mgat1        VPTVAPPAPWRVPVPGTSPFAVIPILVIACDRS-TVRRCLDKLLHYR-PSAE
human_MGAT1      VPTAAPPAQPRVPVTPPAVPIPLVIACDRS-TVRRCLDKLLHYR-PSAE
rabbit_MGAT1     VPTAAPPAQPHVPVTPPPAVPIPLVIACDRS-TVRRCLDKLLHYR-PSAE
Xenopus_gntI    NLNVSSPFPPSPVGSGPLPLVILVIVVACDRP-SVRRCLDSLLKYR-PSAE
fly_Mgat1       AKSATARIPTKTLYLANGEVPVFVVVFACNRV-SVKKCIDNLVQYR-PSVE
Caenorhabditis_gly-13 ---VIMEBMSVDLQKWKDPIPVLFVSCNRAMAVRDHVEKLIMYR-PSQE
Caenorhabditis_gly-14 ---LRITPMNSNNPNWPPIPTVIVFSCNRPDVRAHVLEKLIMYR-PSAQ
Arabidopsis_CGL1 IQTFEKKGIAKLTPGGQMPVAADVVMACSADYLERTVKSULTYQTPVAS
                ..*:.*.*   .:   .:::  *:  *
mouse_Mgat1      RFPPIIVSQDCGHEETAQVIASYGTAUTHIRQP--DLSNIAVQPDHRKFQG
rat_Mgat1        HFPIIIVSQDCGHEETAQVIASYGTAUTHIRQP--DLSNIAVQPDHRKFQG
human_MGAT1      LFPIIIVSQDCGHEETAQAIASYGSVATHIRQP--DLSNIAVPPDHRKFQG
rabbit_MGAT1     LFPPIIIVSQDCGHEETAQVIASYGSVATHIRQP--DLSNIAVQPDHRKFQG
Xenopus_gntI    KFPIIIVSQDCGHEETGKVIDSYGDAVTHIKQP--DLSEVAVPPEHRKFQG
fly_Mgat1       QFPIIIVSQDCGDEBPTKEAILSYGKQVLTIEQP--DLSDDTVLPPEKHKFKG
Caenorhabditis_gly-13 KFPPIIVTDQCDBNVNNEVKFGDKVEYIKHLAGDKANITIPPSHQRYTA
Caenorhabditis_gly-14 QFPITIVSQDCDBNESVKKEVEKFGNSVNYVKHPGESVKIBIPTNLQKPKP
Arabidopsis_CGL1 KYPLFISQDGSDQAVKSKLSY-NQLTYMQHLD---FEPVUTERPGLTA
                .*:***. . . . . :.: .:
mouse_Mgat1      YYKIARHYRWALGQIFNFKF-FPAAVVVEDDLEVADPFFEYFOATYPLL
rat_Mgat1        YYKIARHYRWALGQIFNFKF-FPAAVVVEDDLEVADPFFEYFOATYPLL
human_MGAT1      YYKIARHYRWALGQVFRQFR-FPAAVVVEDDLEVADPFFEYFRATYPLL
rabbit_MGAT1     YYKIARHYRWALGQIFNFN-YPAVVVEDDLEVADPFFEYFOATYPLL
Xenopus_gntI    YYKISRHYRWALNQIFKSMG-YKAAVVVEDDLEVADPFFEYFOATYPLL
fly_Mgat1       YYKIARHYRWALNTTF-AVG-FEFVIIVEDDGNVADPFFEYFLGTHKLL
Caenorhabditis_gly-13 YKRIARHYKLALNHVFDVKG-YSSVITTEDDLDISPFFSYFSSTRYLLE
Caenorhabditis_gly-14 YYYISRHYKLALNHIFSNSNNYSSVITTEDDLDIAPDFFSYFSNTRYLLE
Arabidopsis_CGL1 YKRIARHYKVALDQLFYKHK-FSRVITLEDMDMEIADPFDYFEAAASMD
                **:*:**  *          : .: .: .: .: .: .: .: .:
mouse_Mgat1      TDPSLWCVSAWNDNGKEQMVDSKPELLYRTDFFPGLGWLLLADLWAELE
rat_Mgat1        ADPSLWCVSAWNDNGKEQMVDSKPELLYRTDFFPGLGWLLLADLWAELE
human_MGAT1      ADPSLWCVSAWNDNGKEQMVDSKPELLYRTDFFPGLGWLLLADLWAELE
rabbit_MGAT1     ADPSLWCVSAWNDNGKEQMVDSKPELLYRTDFFPGLGWLLLADLWAELE
Xenopus_gntI    KDRMLWCVSAWNDNGKEALIDPGGTSLLYRSDFPGLGWLLLREIWEELE
fly_Mgat1       QDPSLWCVSAWNDNGKAAVDDAPELLYRTDFFPGLGWMLTKDLWAELS
Caenorhabditis_gly-13 NDEKLWCVTAWNDNGKCNIDMTAASVTLYRSDFPAGLGWMSSKTHWELE
Caenorhabditis_gly-14 KDPSLWCVTAWNDNGKPNIDLSKSNATLYRSDFPAGLGWMTRKTWEELE
Arabidopsis_CGL1 RDKTI MAASSWNDNGQKQFVH--DPYALYRSDFPGLGWMLKRSTWDELS
                *           :           ***:***.*****:  *  *
mouse_Mgat1      PKWKPAFWDDWMRRPEQRKGRACIRPEISRT--MTFGRKGVSHGQFFDQH
rat_Mgat1        PKWKPAFWDDWMRRPEQRKGRACIRPEISRT--MTFGRKGVSHGQFFDQH
human_MGAT1      PKWKPAFWDDWMRRPEQRKGRACIRPEISRT--MTFGRKGVSHGQFFDQH
rabbit_MGAT1     PKWKPAFWDDWMRRPEQRKGRACIRPEISRT--MTFGRKGVSHGQFFDQH
Xenopus_gntI    PKWPSAFWDDWVRPEQRLDRACVRPELSRT--RTFGRKGVSHGQFFDQH
fly_Mgat1       VWKVPFSWDDWIRHPAQKDRVCIRPEISRT--RTFGKIGVSNGLFFEDKY
Caenorhabditis_gly-13 PIWPFVGFWDWMRPARKRKDRQCIPEISRTGMMSYKGEKAGSKGQFFSKH
Caenorhabditis_gly-14 PIWPNFGFWDDWMREFVQRKQRCIRPEISRTGMKMYKEGTSKGQFFFSQY
Arabidopsis_CGL1 PKWKPAYWDDWLRLKENHGKQFIRPEVCT--YNFGEHGSSLGQFFFSQY
                **:.****.  *  *  *  *  *  *  *
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mouse_Mgat1	LKFIKLNQQFVPPFTQLDLSYLQEQEAYDR-DFLAQVYGAPQLQVEKVRTND
rat_Mgat1	LKFIKLNQQFVPPFTQLDLSYLQREAYDR-DFLAQVYGAPQLQVEKVRTND
human_MGAT1	LKFIKLNQQFVHFTQLDLSYLQREAYDR-DFLARVYGAPQLQVEKVRTND
rabbit_MGAT1	LKFIKLNQQFVPPFTQLDLSYLQEQEAYDR-DFLARVYGAPQLQVEKVRTND
Xenopus_gntI	LRFIKLNQDLVRFTKMDLSYLLKDTYDP-WFLEQVYGAPKARAEVLHGQ
fly_Mgat1	LKHIKLSSEDFVQFTKINMSYLLKDNVDN-TFLRRVYTYPIVITYDELRRNL
Caenorhabditis_gly-13	LAKIKVNDKYINFGKIDLDYLLPANFAKKTNLEVMKEAVELSDNVASFV
Caenorhabditis_gly-14	LEKIKVNDLPVDFSQINLDYIQKNEFESRLSLDIR-NAVVDIDDITYPD
Arabidopsis_CGL1	LEPIKLNVDVTVDWKAKDLGYLTGEGNYTK-YFSGLVROARPIQGSIDLVLKA
	* **:: : : : : ** : : : :
mouse_Mgat1	QK--ELGEVRVQYTSRDSFKAFKALGVMDLKSQVPRAGYRGIVTFQF
rat_Mgat1	RK--ELGEVRVQYTSRDSFKAFKALGVMDLKSQVPRAGYRGIVTFQF
human_MGAT1	RK--ELGEVRVQYTGGRDSFKAFKALGVMDLKSQVPRAGYRGIVTFQF
rabbit_MGAT1	RK--ELGEVRVQYTGGRDSFKAFKALGVMDLKSQVPRAGYRGIVTFQF
Xenopus_gntI	VP--GGRTVRVEYTTTKDTFKAMARAFGVMDLKSQVARAAYKGVVSFSH
fly_Mgat1	IR--IEGPFVRIQYTTREQYKRTTKMLGLMDDFKSGVPRTAHYHGIVSEFY
Caenorhabditis_gly-13	LSSENKGSVRVMYDGNIDYIRKADKLHIMHDFKAGVPRTAIDYDGIIVTCFI
Caenorhabditis_gly-14	WKPDYEGMKAIIVYTGRTDFVAKADRLSLMHDFKAGVPRTAIDYDGIIVTCFI
Arabidopsis_CGL1	QN--IKDDVRIRYKQDQVEFERIAGEFGIFEEWKDGVPRTAIKGVVVFRI
	: : * : : : : : : : * * * : * * * *
mouse_Mgat1	RGRRVHLAPPQT-WTGYDPSWN-----
rat_Mgat1	RGRRVHLAPPET-WNGYDPSWN-----
human_MGAT1	RGRRVHLAPPIT-WEGYDPSWN-----
rabbit_MGAT1	RGRRVHLAPPQT-WDGYDPSWT-----
Xenopus_gntI	RGRRVFLAPPKD-WTGYDPLWT-----
fly_Mgat1	NKRRVHLAPNAN-WKGYELSWN-----
Caenorhabditis_gly-13	NGIRIYLVPRDRTKVSAYNPDSVPPSFGE
Caenorhabditis_gly-14	KGTRIFLVPRDSKVPGYDSSW-----
Arabidopsis_CGL1	QTTRRVFLVGPDSVMQLGIRNS-----